

CLAIMS

- 1) A purified or isolated nucleic acid encoding a eukaryotic secreted soluble cerebral cortical voltage-dependent calcium channel  $\alpha_2\delta$ -1 subunit polypeptide.
- 5 2) A purified or isolated nucleic acid according to claim 1, comprising a polynucleotide having at least 90% identity with the sequence encoding from amino-acid 1 to between amino-acids 1009 to 1083 of SEQ ID N°5 or SEQ ID n°14.
- 10 3) A purified or isolated nucleic acid according to claim 1, having at least 90% identity with the sequence encoding from amino-acid 1 to between amino-acids 1043 and 1088 of SEQ ID N°5 or SEQ ID n°14.
- 4) A purified or isolated nucleotide sequence according to claim 1 wherein said sequence is the sequence of SEQ ID N°2, SEQ ID n°3, SEQ ID n°4, SEQ ID n°19, SEQ ID n°20 or SEQ ID n°21.
- 15 5) A purified or isolated nucleic acid, having at least 90% identity with the nucleotide sequence of SEQ ID N°1.
- 6) A purified or isolated polynucleotide comprising at least 10 consecutive nucleotides of the nucleotide sequence of SEQ ID N°1.
- 7) A polynucleotide probe or primer hybridizing, under stringent conditions, with the nucleic acid according to claim 5.
- 20 8) A method for the amplification of a nucleic acid encoding a eukaryotic secreted soluble cerebral cortical voltage-dependent calcium channel  $\alpha_2\delta$ -1 subunit polypeptide, said method comprising the steps of:
- (a) contacting a test sample suspected of containing the target secreted soluble  $\alpha_2\delta$ -1 subunit nucleic acid, or a sequence complementary thereto, with an amplification reaction reagent comprising a pair of amplification primers located on either side of the  $\alpha_2\delta$ -1 subunit nucleic acid region to be amplified, and
- 25 (b) optionally, detecting the amplification products.
- 9) A kit for the amplification of a nucleic acid encoding a secreted soluble  $\alpha_2\delta$ -1 subunit polypeptide, or a complementary sequence thereto in a test sample, wherein said kit comprises:
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(a) a pair of oligonucleotide primers which can hybridize, under stringent conditions, to the secreted soluble  $\alpha_2\delta$ -1 subunit nucleic acid region to be amplified;

(b) optionally, the reagents necessary for performing the amplification reaction.

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10) A recombinant vector comprising a nucleic acid according to claim 1.

11) A recombinant host cell comprising a nucleic acid according to claim 1.

12) A method for producing a secreted soluble  $\alpha_2\delta$ -1 subunit wherein said method comprises the steps of:

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(a) inserting the nucleic acid encoding the desired  $\alpha_2\delta$ -1 subunit polypeptide in an appropriate vector;

(b) culturing, in an appropriate culture medium, a host cell previously transformed or transfected with the recombinant vector of step (a);

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(c) harvesting the culture medium thus obtained or lyse the host cell, for example by sonication or osmotic shock;

(d) separating or purifying, from said culture medium, or from the pellet of the resultant host cell lysate, the thus produced  $\alpha_2\delta$ -1 subunit polypeptide of interest.

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13) A purified or isolated recombinant polypeptide comprising the amino acid sequence of a secreted soluble  $\alpha_2\delta$ -1 subunit polypeptide.

14) A recombinant polypeptide according to claim 13, having at least 80% amino acid identity with a polypeptide comprising from amino acid 1 to between amino acids 985 and 1054 of the amino acid sequence of SEQ ID N°5 or SEQ ID n°14, or a sequence complementary thereto.

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15) A recombinant polypeptide according to claim 14, wherein said recombinant polypeptide is selected from the group consisting of the amino acid sequences of SEQ ID n°6, SEQ ID n°7, SEQ ID n°8, SEQ ID n°15, SEQ ID n°16 and SEQ ID n°17.

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